CWHW96: Compare Quadratic Functions & Solve by Graphing

Geometry

***Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ P: \_\_\_\_***

**Transformations**

**y =a(x+b)2 + c**

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| --- | --- | --- | --- | --- | --- | --- |
| **Horizontal Stretch** (narrow) | **Horizontal Shrink** (wide) | **Shift up** | **Shift down** | **Shift left** | **Shift right** | **Reflection** (sad face) |

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| 1) Which multiple choice option describes the correct transformation to the parent graph ()?  A. Shrink and shift down 1 units  B. Stretch and shift down 3 units  C. Stretch and reflection across the x-axis  D. Shrink, shift down 3 units, and reflection  across the x-axis  E. Shrink and reflection across the x-axis | 2) How would the graph of the function y = x2 + 4 affected if the function were changed to y = x2 – 3?  A. The graph would shift 4 units up.  B. The graph would shift 3 units down.  C. The graph would shift 7 units down.  D. The graph would shift 4 units to the right.  E. The graph would shift 4 units down. |
| 3) Describe the transformation of y = 5x2 – 4 to the parent function? | 4) How would the graph of the function  y = x2 -2 affected if the function were changed to y = x2 + 4? |

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| 5) Which multiple choice option describes the correct transformation to the parent graph ()?  A. Shrink and shift up 5 units  B. Stretch and shift up 5 units  C. Stretch and reflection across the x-axis  D. Shrink, shift up 5 units, and reflection  across the x-axis  E. Stretch, shift up 5 units, and reflection across the x-axis | 6) How would the graph of the function y = x2 – 2 affected if the function were changed to y = x2 + 1?  A. The graph would shift 1 unit up.  B. The graph would shift 2 units down.  C. The graph would shift 3 units down.  D. The graph would shift 3 units to the right.  E. The graph would shift 3 units up. |
| 7) Describe the transformation of y = -x2 + 7 to the parent function? | 8) How would the graph of the function  y = x2 + 2 affected if the function were changed to y = x2 – 5? |
| 9) Describe the transformation of y = -2(x+3)2 – 4 to the parent function? | 10) How would the graph of the function  y = x2 – 6 affected if the function were changed to  y = (x-2)2+ 2? |
| 11) Describe the transformation of y = 6x2 + 8 to the parent function? | 12) How would the graph of the function  y = x2 + 1 affected if the function were changed to  y = x2+ 5? |

**Question:** How do I solve quadratic equations by graphing?

**Step 1:** Write the equation in standard form: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Step 2:** Graph the function (following the steps from yesterday) to determine the \_\_ - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. These values are called the “\_\_\_\_\_\_\_\_\_” or “\_\_\_\_\_\_\_\_\_” of a function, and are the solutions to the function.

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| Quadratic Equation with TWO solutions must have \_\_\_  x-intercepts. | Quadratic Equation with ONE solution must have \_\_\_\_  x-intercept. | Quadratic equation with NO real solution must have \_\_\_  x-intercepts. |

**Step 3:** If solutions are found, check the solutions by substituting them into the \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_.

Directions: For the problems below, create a graph of the function and list the axis of symmetry, vertex, and solution(s) if any.

|  |  |
| --- | --- |
| 1) Solve | 2) |
| 3) . | 4) |
| 5) | 6) |
| 7) | 8) |

**EXIT SLIP: NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| 1) Find the zeros, if any, of .  a. Table: b. Graph:     |  |  | | --- | --- | | x | y | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  |   c. AOS: d. Vertex: ( \_\_\_ , \_\_\_ )  *circle one:* max min  e. Solutions: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 2) Describe the transformation of y = -½x2 – 1 to the parent function? |

**EXIT SLIP: NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| 1) Find the zeros, if any, of .  a. Table: b. Graph:     |  |  | | --- | --- | | x | y | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  |   c. AOS: d. Vertex: ( \_\_\_ , \_\_\_ )  *circle one:* max min  e. Solutions: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 2) Describe the transformation of y = -½x2 – 1 to the parent function? |